

### **REMARKS**

In response to the Office Action dated July 24, 2006, claims 1, 3-6 and 10-13 have been amended. Claims 1-6 and 10-13 are now active in this application. No new matter has been added. Claims 7-9 and 14 are withdrawn from consideration as being directed to a non-elected invention.

The indication that claims 6 and 13 are objected to, but would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims, and if noted indefiniteness is addressed, is acknowledged and appreciated.

### **REJECTION OF CLAIMS UNDER 35 U.S.C. § 112, SECOND PARAGRAPH**

Claims 3, 6 and 13 have been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. In claim 3, the Examiner contends says that “reproducible” is “not given patentable weight and is interpreted as an intended use”.

The initial burden of establishing a *prima facie* basis to deny patentability to a claimed invention is always upon the Examiner. *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992); *In re Piasecki*, 745 F.2d 1468, 223 USPQ 785 (Fed. Cir. 1984).

**I.** This initial burden has not been met as to the rejection of claim 3 as the Examiner has provided no explanation as to why “reproducible” is not given patentable weight and is interpreted as an intended use.

Nevertheless, to expedite prosecution, claim 3 has been amended to delineate:

...the broad-range image data relates to the inversely converted image data in such a manner that the broad-ranged image data can be reproduced by adding the difference data to the inversely converted image data.

The amendments to claim 3 are non-narrowing claim amendments.

Amended claim 3 is supported by at least the description at page 9, lines 5-12 of paragraph [0024]. Thus, amended claim 3 recites the invention with the degree of precision and particularity required by the statute. Therefore, it is respectfully urged that the rejection of claim 3 as being indefinite be withdrawn.

II. With respect to claims 6 and 12, the Examiner contends that the following makes no sense:

the sub-step of reducing a number of quantizing bits of the broad-range image data sequentially from a lowermost bit until the number of quantizing bits of the broad-range image data becomes equal to a number of quantizing bits of the narrow-range image data...

However, Applicant disagrees.

Case law precedent has established that an analysis under 35 U.S.C. § 112 begins with a determination of whether the claims do, in fact, set out and circumscribe a particular area with a reasonable degree of precision and particularity. Claim language is viewed not in a vacuum, but in light of the teachings of the prior art and of the application disclosure as it would be interpreted by one possessing the ordinary level of skill in the art. *In re Johnson*, 558 F.2d 1008, 194 USPQ 187 (CCPA 1977); *In re Moore*, 439 F.2d 1232, 169 USPQ 236 (CCPA 1971).

A decision on whether a claim is invalid under this section of the statute requires a determination of whether those skilled in the art would understand what is claimed when the

claim is read in light of the specification, *Seattle Box Co. v Industrial Crating & Packing*, 731 F.2d 381, 385, 221 USPQ 568, 574 (Fed. Cir. 1984).

The Examiner's problem concerning this recitation results from the fact that the Examiner is reading the claim language in a vacuum and not in light of the specification, as is required.

Paragraph [0030] describes:

**[0030]** As stated above, linear processing can produce a difference with an extremely simple configuration. The input 22a to the processing circuit 40a is the **original twelve-bit data [101000101101]<sub>2</sub>**. On the other hand, the **output 70a from the processing circuit 40a is ten-bit data [1010001011]<sub>2</sub> in the form without the lower two bits of the input 22a**. The difference calculator 60a subtracts the data 70a from the data 22a while aligning the uppermost bits of the data 22a and 70a. In a strict sense, before the subtraction, the data 70a must be subjected to processing corresponding to the inverse processing described previously, i.e., adding (logical) ZEROs to two lower bits to thereby output [101000101100]<sub>2</sub>. However, this extra step is not necessary because the difference calculator 60a always aligns the uppermost bits of the data 22a and 70a at the time of subtraction. FIG. 4 shows such simplified circuitry. The difference 25a can be obtained also by simply dividing the input data 22a into upper bits and lower bits, although not shown or described specifically. (Emphasis Added)

It is submitted that when the claim language is read in light of the specification, and this description in particular, an artisan would readily understand the metes and bounds of the invention.

At any rate, to expedite prosecution, claims 6 and 13 have been amended to recite:

...the sub-step of reducing a number of quantizing bits of the broad-range image data beginning with a least significant quantizing bit and continuing in sequence from the least significant bit towards higher order bits until the number of quantizing bits of the broad-range image data becomes equal to a number of quantizing bits of the narrow-range image data, and said step of inversely converting comprises the sub-step of adding ZERO bits to a least significant quantizing bit of the narrow-range image data until the number of quantizing bits of the narrow-range image data becomes equal to a number of quantizing bits of the broad-range image data.

The amendments to claims 6 and 13 are non-narrowing claim amendments.

With respect to amended claims 6 and 13, it should be noted also that the disclosure need not recite the claim language in *haec verba*. *In re Smith*, 481 F.2d 910, 178 USPQ 620 (CCPA 1973).

Thus, amended claims 6 and 13 recite the invention with the degree of precision and particularity required by the statute. Therefore, it is respectfully urged that the rejection of claims 6 and 13 as being indefinite be withdrawn.

#### **REJECTION OF CLAIMS UNDER 35 U.S.C. § 102**

Claims 1-5 and 10-12 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Johnson (USPN 5,892,847).

Johnson teaches a system for compressing and decompressing images specifically by discrete cosine transform (DCT) and inverse DCT.

To expedite prosecution, independent claim 1 has been amended to recite:

A method of processing image data comprising the steps of:  
    converting broad-range image data having a broad dynamic range to narrow-range image data narrower in dynamic range than the broad-range image data;  
    inversely converting the narrow-range image data to thereby output inversely converted image data having a same dynamic range as the broad-range image data;  
    calculating difference data representative of a difference between the broad-range image data and the inversely converted image data; and  
    generating a file that relates the difference data, information relating the difference data to said step of converting and the narrow-range image data to one another.

In addition, independent claim 10 has been amended to recited:

An apparatus for recording image data comprising at least one image processing circuitry and a storage, said at least one image processing circuitry comprising:

a converting circuit for converting input image data to output image data having a smaller number of quantizing levels than the input image data and feeding the output image data to another image processing circuitry;

an inverse converting circuit for inversely converting the output image data to thereby produce inversely converted image data having a same dynamic range as the input image data; and

a calculating circuit for calculating difference data representative of a difference between the input image data and the output image data;

said at least one image processing circuitry converting broad-range image data having a broad dynamic range to narrow-range image data narrower in dynamic range than the broad-range image data,

the narrow-range image data, the difference data and information relating the difference data to said converting circuit being recorded in said storage while being related to one another.

The present invention is directed to a method of and apparatus for processing image data by changing the dynamic range of image data, and more specifically by reducing the quantizing bit positions from the least significant bit position. The *conversion of the dynamic range of image data*, more specifically the reduction of the bit positions defining quantizing levels, is completely different from the signal transform such as DCT transform. In accordance with the present invention, the reduction of the bit positions of the quantizing levels of image signals is the operation of reducing the bit depth of quantized image signals. In contrast, the DCT transform is a sort of data compression (orthogonal transform) and **NOT** the reduction of bit depth.

Therefore, amended independent claims 1 and 10 are patentable over Johnson, as are dependent claims 2-5, 11 and 12 applicant's invention is we therefore believe neither anticipated by nor obvious over Johnson.

**RESTRICTION OF MAY 17, 2006**

The Examiner required election of either Group I or II in the Official Letter dated May 17, 2006, on the ground that Groups I and II are drawn to quantization and transforms, respectively. However, both groups are drawn to the same generic idea of reducing the bit depth of image signals when quantized. In this regard, claim 1 is generic. If claim 1 is allowable, it is respectfully requested that that claims 7-9 and 14 be rejoined and examined.

**CONCLUSION**

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Edward J. Wise (Reg. No. 34,523) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

By 

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